PERFORMANCE WORK STATEMENT

Contract: **N66001-15-D-0055**
Task Order: **0002**
Tracking Number: **5161-H0006**
Task Title: (b)(3)
Date: August 16, 2015

1.0 SCOPE

This is a level of effort task order for engineering and technical support to SSC Pacific tasking under the Marine Corps Forces Pacific (MARFORPAC), Command and Control, Computers, Communications, Intelligence, Surveillance and Reconnaissance (C4ISR) (b)(3) Tasking will be performed primarily at SPAWARSYSCEN Hawaii and will include technical support and services to document, develop and analyze C4ISR design elements in support of the MARFORPAC Defense Policy Review Initiative (DPRI) Program.

2.0 APPLICABLE DOCUMENTS

2.1 COMSPAWAR M-4720.1 (Version 4.0) Shore Installation Process Handbook (SIPH)

2.2 SPAWARINST 3432.1 (Series), Operations Security Policy

2.3 MIL-STD-38784A: Standard Practice for Manuals, Technical: General Style and Format Requirements

2.4 MIL-STD-96E1: Defense and Program-Unique Specifications and Content

2.5 MIL-DTL-31000C: Technical Data Packages

2.6 UFC 3-580-01: Telecommunications Building Cabling Systems Planning and Design

2.7 NPFA 101: National Fire Protection Association, Life Safety Code

2.8 NFPA 70:National Fire Protection Association, National Electrical Code

2.9 NFPA 75: National Fire Protection Association, Standard for the Protection of Information Technology Equipment

2.10 MIL-STD-1472G: Design Criteria Standard: Human Engineering

2.11 MIL-HDBK-454B: General Guidelines for Electronic Equipment

2.12 EIA/TIA-607: Commercial Building Grounding and Bonding Requirements for Telecommunications (ANSI/EIA/TIA-607-94)

2.13 TIA-598-C: Optical Fiber Cable Color Coding (ANSI/EIA/TIA 598 A94)

2.14 DOD 5205.02E (Series), DOD Operations Security (OPSEC) Program

2.15 DOD 5220.22-M: National Industry Security Program Operating Manual (NISPOM)

2.16 DOD 8570.1-M: Information Assurance Workforce Improvement Program

2.17 DOD 8500.1: Cyber Security

2.18 OPNAVINST 3432.1A (Series), DON Operations Security

2.19 National Security Decision Directive 298 (Series), National Operations Security Program (NSDD) 298

3.0 REQUIREMENTS

The Contractor shall perform the following tasks:

3.1 Task 1: MV-22 Aircraft Maintenance Hangar

3.1.1 C4ISR Engineering Support Requirements

3.1.1.1 The contractor shall provide systems engineering expertise and technical inputs and recommendations to optimize effectiveness and efficiency of C4ISR system design, integration, installation and test.

3.1.1.2 The contractor shall utilize Marine Corps operational expertise and experience to add relevance to SSC-PAC's engineering/technical analysis of C4ISR systems, networks, human factors and facility requirements.

3.1.1.3 The contractor shall conduct and/or participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other meetings as required with both internal-SPAWAR and external stakeholders.

3.1.1.4 The contractor shall support the development of C4ISR engineering designs and implementation plans and support short-fused data calls, white papers, engineering analysis and technical research within the technical scope of work.

3.1.1.5 The contractor shall assist with design development planning for required C4ISR systems that includes site and equipment surveys, scheduling plans, work breakdown structures, and engineering analyses to optimize performance and meet system requirements.

3.1.1.6 The contractor shall assist in the development of a C4ISR Installation Design Plans (IDP), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details and diagrams.

3.1.1.7 The contractor shall provide technical input to all pertinent aspects of the functional area design and execution, such as: network infrastructure, networks, commercial services, messaging, voice, audio visual, video teleconferencing, emergency operations centers, technical control facilities, Sensitive Compartmented Information Facilities **(**SCIFs**),** and other pertinent C4ISR mission areas and capabilities.

3.1.1.8 The contractor shall support the government Subject Matter Expert (SME) Team by providing coordination and inputs to the following SPAWAR Shore Installation Process Handbook, Appendix Y, specific requirements and incremental reviews/packages.

3.1.1.8.1 Systems Requirements Review (SRR) Packages

The SRR Package consists of a Project Management Plan, Base Electronic System Engineering Plan, Rough Order of Magnitude Cost Estimate, Requirements Analysis Document, Responsibilities Matrix, Plan of Action and Milestones, Work Breakdown Structure, Integrated Master Schedule, Earned Value Management Plan and Capability Matrix.

3.1.1.8.2 Top Level Design Review (TLDR) Packages

The TLDR Package consists of a Concept Diagram, Operational Capabilities, Relationships, Functional Area Descriptions, Functional Block Diagrams, Responsibilities Matrix, and Functional Interface Diagram.

3.1.1.8.3 System Design Review (SDR) Packages

The SDR Package consists of a Capabilities Matrix Update, Top Level Design Update, Configuration Management Strategy, Transition Strategy, Installation Strategy, Test Strategy, System Design Document, and Procurement Strategy.

3.1.1.8.4 Critical Design Review (CDR) Packages

The CDR Package consists of a Final System Design Document, Configuration Management Plan, Quality Assurance (QA) Plan, Procurement Plan, Certification and Accreditation (C&A) Strategy, System Operation Verification Test (SOVT) Strategy, and Integrated Logistics Support (ILS) Strategy.

3.1.1.8.5 Preliminary Installation Design Review (PIDR) Packages

The PIDR Package consists of a 30% Installation Design Plan (IDP), C&A Plan, ILS Plan SOVT Plans and Transition & Cutover Plan.

3.1.1.8.6 Final Installation Design Review (FIDR) Packages

The FIDR Package consists of the 100% IDP and Fleet Readiness Control Board (FRCB) Package artifacts, drawings and design elements.

3.1.2 Network and C4ISR Infrastructure Engineering Requirements

3.1.2.1 The contractor shall provide engineering support and subject matter expertise in the installation design of voice and data capabilities throughout all layers of the Open Systems Interconnection Model (OSI Model) – hardware, software, routing, and network.

3.1.2.2 The contractor shall assist with the planning and designing of network infrastructure and enterprise network and voice solutions, including the development of an optical transport network engineering design and implementation plan; ensuring the design meets project requirements for performance, growth, and scalability.

3.1.2.3 The contractor shall provide C4ISR engineering support and network engineering subject matter expertise; including expertise in Optical Transport technology and a project focus area of Dense Wavelength Division Multiplexing (DWDM).

3.1.2.4 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including expertise in the performance characteristics of C4ISR systems being added to Marine Corp and Navy networks and the specifications for network interfaces to ensure effective integration and optimal network/voice performance.

3.1.2.5 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including knowledge of Ethernet and IP networking fundamentals, routers, routing protocols, virtual networks, LAN switches (core, distribution and access), firewalls, voice gateways, network hardware and network architecture design.

3.1.2.6 The contractor will perform C4ISR engineering/technical analysis on networking and or system requirements and provide results, recommendations and rationale to the government functional area (networks) technical lead.

3.1.2.7 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.1.2.8 The contractor shall provide technical inputs to the development of network and voice engineering designs and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.1.2.9 The contractor shall support site surveys and the development of network site survey reports in accordance with the SPAWAR Shore Installation Process Handbook.

3.1.2.10 The contractor shall assist in the development of network and voice Installation Design Plans (IDPs), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.1.3 Audio Visual Engineering Requirements

3.1.3.1 The contractor shall assist with the planning and designing of Audio Visual (AV) and Video teleconference (VTC) technical solutions to meet project requirements ensuring optimal system performance, growth, and scalability.

3.1.3.2 The contractor shall provide AV engineering support and AV engineering subject matter expertise; including VTC systems.

3.1.3.3 The contractor will perform C4ISR engineering/technical analysis on AV and VTC system requirements and provide results, recommendations and rationale to the government functional area (AV) engineering lead.

3.1.3.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.1.3.5 The contractor shall provide inputs to the development of engineering design and implementation plans for VTC networks and integrated AV systems. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.1.3.6 The contractor shall provide AV-related inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.1.3.7 The contractor shall provide AV-related inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.1.3.8 The contractor shall provide engineering support and subject matter expertise to provide technical inputs and recommendations associated with the specific technologies to include: Cisco VTC Codecs, Polycom VTC Codecs, Extron AV matrix switchers, AMX control system hardware and software, and Crestron control system hardware and software.

3.1.4 Electronic Security Systems Engineering Requirements

3.1.4.1 The contractor shall provide engineering support and engineering subject matter expertise in facility security systems and capabilities including: Sensor Management System (SMS), Joint Perimeter Surveillance Command and Control System (JPSC2), Adaptive Networks (ADN), Intrusion Detection Systems (IDS), alarm systems integration, Emergency Response Networks, electronic sensors, Biometrics, Surveillance systems (closed circuit television, and acoustic sensors), Smart card technology, and Anti-Terrorism/Force Protection (AT/FP) information management support.

3.1.4.2 The contractor shall assist with the planning and designing of electronic physical security systems, capabilities and solutions; ensuring each design meets project requirements for performance, compatibility, growth, and scalability.

3.1.4.3 The contractor shall provide physical security systems subject matter expertise including the technologies and functionalities listed in paragraph 3.1.4.1 above.

3.1.4.4 The contractor will perform C4ISR engineering/technical analysis on operational and or system requirements and provide results, recommendations and rationale to the government functional area (Physical Security Systems) engineering lead.

3.1.4.5 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.1.4.6 The contractor shall provide inputs to the development of physical security system design and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.1.4.7 The contractor shall provide functional area inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.1.4.8 The contractor shall provide physical security system related technical inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.1.5 Certification and Accreditation (Information Assurance) Engineering Requirements

3.1.5.1 The contractor shall provide Information Assurance and cyber security engineering subject matter expertise including: researching and processing security, technical and policy information to develop DoD Information Assurance Certification and Accreditation Process **(**DIACAP) packages and/or Risk Management Framework (RMF) packages for multiple networking solutions.

3.1.5.2 The contractor will apply the RMF and/or DIACAP to information systems/networks architectures, systems engineering, standards, processes, procedures, and specifications and evaluate and verify networks/systems' compliance to RMF and DIACAP related directives, the RMF security control assessment processes, and cybersecurity practices.

3.1.5.3 The contractor will perform engineering/technical analysis including the analysis of network protocols and the associated network logs and provide results, recommendations and rationale to the government functional area technical lead.

3.1.5.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required with both internal-SPAWAR and external stakeholders.

3.1.5.5 The contractor will ensure accreditation boundary, technical configurations, IA Controls and Security Technical Implementation Guides (STIG) requirements are documented and archived to meet DoD, Navy and Marine Corps network standards for an accredited baseline.

3.1.5.6 The contractor will support implementing and testing applicable IA controls, conducting testing activities, recording compliance status, maintaining IT security POA&Ms, and performing schedule reviews.

3.1.5.7 The contractor will perform vulnerability scanning, analyze results and assist in coordinating technical response and actions to facilitate remediation and correction of deficiencies identified.

3.1.5.8 The contractor will conduct network security reviews that include validation of current network security policy, requirements, design, comparative analysis, and assessment of the information assurance architecture.

3.1.5.9 The contractor will develop Security Implementation Plans, System Security Authorization Agreements, Installation Guides and Acceptance Test Plans for project deployment and conduct Security Test and Evaluation (ST&E) reviews, including system security reviews, to ensure that systems conform to all applicable STIGS.

3.1.6 Requirements Management Support Requirements

3.1.6.1 The contractor shall ensure C4ISR technical requirements have proper approvals and meet needs and expectations of stakeholders. The contractor shall maintain a comprehensive listing of requirements, document any changes to the requirements and communicate change back to the relevant stakeholders. The contractor shall analyze each requirement to ensure that it traces back to a documented need, goal or higher-level requirement.

3.1.6.2 The contractor shall attend technical C4ISR team and stakeholder meetings to ensure requirements are identified and documented and to report requirements status.

3.1.6.3 The contractor shall support the System Change Request process which includes documenting requirements and all associated changes. Requirements changes shall be documented in the Requirements Analysis Documents (RAD) as applicable.

3.1.6.4 The contractor shall develop and maintain access control, document identifier schema, records folder structure, and file naming convention for requirements documents and matrices.

3.1.6.5 The contractor shall develop and maintain project schedules using MS Project software for the tracking and reporting of requirements and managing progress.

3.1.6.6 The contractor shall support the project closeout process including delivery of As-built drawings, warranties, O&M manuals and spare parts turnover.

3.1.7 Configuration Management Support Requirements

3.1.7.1 The contractor shall develop and maintain access control, document identifier schema, records folder structure, repository and file naming convention.

3.1.7.2 The contractor shall implement policies, procedures, techniques, and tools required to manage and evaluate proposed changes and track the status and impact of these changes to requirements and the physical configuration of the C4ISR systems.

3.1.7.3 The contractor shall develop and maintain a CM Plan for the project that includes provisions for the storing, tracking, and updating of all system information on each component, subsystem, and system cost.

3.1.7.4 The contractor shall establish and maintain consistency of C4ISR functional and physical project attributes requirements, design, and operational information throughout the entire project life-cycle.

3.1.7.5 The contractor shall provide technical and administrative direction for the development and implementation of procedures, functions, services, tools, processes and resources required to successfully design, develop, install and support complex C4ISR systems.

3.1.7.6 The contractor shall create and manage an accurate record of systems status and support documents as applicable changes are made to system requirements and/or design. The CM tracks these requirements throughout the project's life cycle from project inception through final acceptance to operations and maintenance.

3.1.7.7 The contractor shall facilitate orderly management of C4ISR system information and system changes to improve performance, reliability, or maintainability, extend life, reduce cost, reduce risk and liability, and/or correct defects.

3.1.7.8 The contractor shall track and control work products/configuration items in accordance with the C4I Work Product Initial Baseline detailed below:

- C4I Capabilities Matrix
- Meeting Minutes
- Staffing Plan
- Design Documents and Drawings
- Equipment/Materials Disposition Plan
- FRCB Packages
- Implementation Schedule

- Installation Strategy
- Integrated Logistic Support(ILS)/User's Logistics Support Summary(ULSS)
- Installation Design Plan/Drawings (IDP)
- MILCON Base Electronic Systems Engineering Plan (BESEP)
- SIPH Appendix Y Placemat
- Project Management Plan (PMP)
- Requirements Analysis Documents (RAD)
- Configuration Management Plan (CMP)
- Quality Assurance Plan (QAP)
- System Operational Verification Test (SOVT) Plans
- Transition & Cutover Plans

3.1.8 MILCON C4ISR Integration Support Functions

3.1.8.1 The contractor shall assist the government in providing Military Construction (MILCON) Base Electronics Engineering Systems Engineering Plans (BESEP) and associated deliverables in accordance with the SPAWAR Shore Installation Process Handbook.

3.1.8.2 The contractor shall assist the government in detailing pertinent C4ISR system technical parameters, physical characteristics, environmental and interface requirements and performance objectives that impact construction design.

3.1.8.3 The contractor shall support the government Chief Engineer/Lead Systems Engineer in ensuring C4ISR requirements and concerns/issues are being addressed through all phases of NAVFAC PAC-Architect/Engineer (A/E) design and construction effort. This includes factors such as; C4ISR system heat, power and cable infrastructure requirements, fire protection, electronic physical security, mission assurance criteria (MAC) and confidentiality levels, electromagnetic compatibility/interference (EMC/EMI), bonding/shielding/grounding are accounted for in the A/E design.

3.1.8.4 The contractor shall attend key building design reviews and charettes that occur during the Task Order Period of Performance (POP).

3.1.8.5 The contractor shall advise the government of lessons learned from previous MILCON projects to improve planning and execution of future projects.

3.1.9 Technical Writing Support Requirements

3.1.9.1 The contractor shall attend and document design review and team meetings at SPAWAR, DPRI, and other sites as directed. The meeting minutes will document key technical discussions, agreements, and actions plans from the reviews and meetings.

3.1.9.2 The contractor shall make and properly record changes to C4ISR technical manuals, instructions and other documents. Where applicable, the contractor shall complete change page records.

3.1.9.3 The contractor shall collate material provided by the C4ISR Technical Team according to a defined order, i.e., numerical, alphabetical, by topic.

3.1.9.4 The contractor shall support the development, editing, proofreading, organizing and review of planning and design documents such as; System Operational Verification Tests (SOVT), Transition and Cutover Plans, Integrated Logistics Support Plans (ILSP), and Certification and Accreditation (C&A) plans in accordance with the Shore Installation Process Handbook. The documents will be formatted in MS Word and converted into portable document format (PDF) file for distribution.

3.1.9.5 The contractor shall compile and consolidate complex technical information and inputs received from project SMEs to produce engineering design documents and briefings. Information will be provided by the engineering team through discussions, interviews, reference documents, design drawings, notes and sketches.

3.1.9.6 The contractor shall generate and add titles, labels, tags, nameplates, and headings to documents and shall provide indexes and tables of contents for written material/documents.

3.1.9.7 The contractor shall write abstracts of documents to provide background for task analysis.

3.1.10 Drafting Support Requirements

3.1.10.1 The contractor shall perform C4ISR engineering drafting, drawing review, drawing control, and related services required in the design of electronic/communications equipment, systems and installations. Drawings shall be prepared in digital format using AUTOCAD software in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.1.10.2 The contractor shall produce mechanical, electrical/electronic drawings from rough engineering sketches in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.1.10.3 The contractor shall scale drawings to permit additions of details. This may require enlarging or reducing supplied drawings, providing "blow-ups" of selected zones of drawings to show appropriate details. When required, perform sectioning of various views to show "hidden" details.

3.1.10.4 The contractor shall prepare drawing layouts from one or more engineering sketches, which clearly emphasize elements necessary for timely installation, fabrication, acquisition or adaptations.

3.1.10.5 The contractor shall examine and check engineering drawings for compliance with cited specifications and to ensure necessary items are included in each drawing to support the assigned task.

3.1.10.6 The contractor shall draw graphs or charts in any scale from rough diagrams, construct proportions to represent intended percentages of displayed data, and choose appropriate media for the presentation.

3.1.10.7 The contractor shall prepare engineering drawings or sketches of existing equipment or installations where original drawings are inadequate or non-existent.

3.1.10.8 The contractor shall prepare illustrations, diagrams, graphs, charts, 3D renderings, or other appropriate graphic medium for various presentation media as MS Power Point briefing slides, reports, user manuals, and training materials.

3.1.10.9 The contractor shall manage and control IDP Master Drawing Sets, including the cross-referenced (X-REF) files.

3.1.10.10 The contractor shall update IDPs base on red-lines provided by the project design team.

3.1.11 Administrative and Clerical Support Requirements

3.1.11.1 The contractor shall attend and record minutes for project meetings and reviews.

3.1.11.2 The contractor shall perform data entry into various data systems and management information systems to ensure current status. The contractor will retrieve status reports from databases.

3.1.11.3 Using MS Office software, including MS Project and MS SharePoint, the contractor shall perform editing, updating, proofing, general organizing and distribution of C4ISR technical documents and status reports.

3.1.11.4 The contractor shall make reproduced copies of original technical documents and file printed copies as required to support meetings, briefings and deliverables. The contractor shall also maintain files of printed documents.

3.1.11.5 The contractor shall maintain administrative supplies supporting planning and execution and assist in ordering administrative supplies.

3.1.11.6 The contractor shall manage the scheduling of conference rooms to support meetings.

3.1.11.7 The contractor shall manage folders, files, and documents on the Department's share drive and MS SharePoint site.

3.1.11.8 The contractor shall provide assistance in coordinating site visits, and arranging travel (including assisting with travel requests and air, hotel and car reservations).

3.1.11.9 The contractor shall maintain and keep current documents that support effectiveness and organization such as the organization charts, recall rosters, project schedules and reports.

3.2 Task 2: JSF Aircraft Maintenance Hangar

3.2.1 C4ISR Engineering Support Requirements

3.2.1.1 The contractor shall provide systems engineering expertise and technical inputs and recommendations to optimize effectiveness and efficiency of C4ISR system design, integration, installation and test.

3.2.1.2 The contractor shall utilize Marine Corps operational expertise and experience to add relevance to SSC-PAC's engineering/technical analysis of C4ISR systems, networks, human factors and facility requirements.

3.2.1.3 The contractor shall conduct and/or participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other meetings as required with both internal-SPAWAR and external stakeholders.

3.2.1.4 The contractor shall support the development of C4ISR engineering designs and implementation plans and support short-fused data calls, white papers, engineering analysis and technical research within the technical scope of work.

3.2.1.5 The contractor shall assist with design development planning for required C4ISR systems that includes site and equipment surveys, scheduling plans, work breakdown structures, and engineering analyses to optimize performance and meet system requirements.

3.2.1.6 The contractor shall assist in the development of a C4ISR Installation Design Plans (IDP), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details and diagrams.

3.2.1.7 The contractor shall provide technical input to all pertinent aspects of the functional area design and execution, such as: network infrastructure, networks, commercial services, messaging, voice, audio visual, video teleconferencing, emergency operations centers, technical control facilities, Sensitive Compartmented Information Facilities **(**SCIFs**),** and other pertinent C4ISR mission areas and capabilities.

3.2.1.8 The contractor shall support the government Subject Matter Expert (SME) Team by providing coordination and inputs to the following SPAWAR Shore Installation Process Handbook, Appendix Y, specific requirements and incremental reviews/packages.

3.2.1.8.1 Systems Requirements Review (SRR) Packages
The SRR Package consists of a Project Management Plan, Base Electronic System Engineering Plan, Rough Order of Magnitude Cost Estimate, Requirements Analysis

Document, Responsibilities Matrix, Plan of Action and Milestones, Work Breakdown Structure, Integrated Master Schedule, Earned Value Management Plan and Capability Matrix.

3.2.1.8.2 Top Level Design Review (TLDR) Packages
The TLDR Package consists of a Concept Diagram, Operational Capabilities, Relationships, Functional Area Descriptions, Functional Block Diagrams, Responsibilities Matrix, and Functional Interface Diagram.

3.2.1.8.3 System Design Review (SDR) Packages
The SDR Package consists of a Capabilities Matrix Update, Top Level Design Update, Configuration Management Strategy, Transition Strategy, Installation Strategy, Test Strategy, System Design Document, and Procurement Strategy.

3.2.1.8.4 Critical Design Review (CDR) Packages
The CDR Package consists of a Final System Design Document, Configuration Management Plan, Quality Assurance (QA) Plan, Procurement Plan, Certification and Accreditation (C&A) Strategy, System Operation Verification Test (SOVT) Strategy, and Integrated Logistics Support (ILS) Strategy.

3.2.1.8.5 Preliminary Installation Design Review (PIDR) Packages
The PIDR Package consists of a 30% Installation Design Plan (IDP), C&A Plan, ILS Plan SOVT Plans and Transition & Cutover Plan.

3.2.1.8.6 Final Installation Design Review (FIDR) Packages
The FIDR Package consists of the 100% IDP and Fleet Readiness Control Board (FRCB) Package artifacts, drawings and design elements.

3.2.2 Network and C4ISR Infrastructure Engineering Requirements

3.2.2.1 The contractor shall provide engineering support and subject matter expertise in the installation design of voice and data capabilities throughout all layers of the Open Systems Interconnection Model (OSI Model) – hardware, software, routing, and network.

3.2.2.2 The contractor shall assist with the planning and designing of network infrastructure and enterprise network and voice solutions, including the development of an optical transport network engineering design and implementation plan; ensuring the design meets project requirements for performance, growth, and scalability.

3.2.2.3 The contractor shall provide C4ISR engineering support and network engineering subject matter expertise; including expertise in Optical Transport technology and a project focus area of Dense Wavelength Division Multiplexing (DWDM).

3.2.2.4 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including expertise in the performance characteristics of C4ISR

systems being added to Marine Corp and Navy networks and the specifications for network interfaces to ensure effective integration and optimal network/voice performance.

3.2.2.5 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including knowledge of Ethernet and IP networking fundamentals, routers, routing protocols, virtual networks, LAN switches (core, distribution and access), firewalls, voice gateways, network hardware and network architecture design.

3.2.2.6 The contractor will perform C4ISR engineering/technical analysis on networking and or system requirements and provide results, recommendations and rationale to the government functional area (networks) technical lead.

3.2.2.7 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.2.2.8 The contractor shall provide technical inputs to the development of network and voice engineering designs and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.2.2.9 The contractor shall support site surveys and the development of network site survey reports in accordance with the SPAWAR Shore Installation Process Handbook.

3.2.2.10 The contractor shall assist in the development of network and voice Installation Design Plans (IDPs), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.2.3 Audio Visual Engineering Requirements

3.2.3.1 The contractor shall assist with the planning and designing of Audio Visual (AV) and Video teleconference (VTC) technical solutions to meet project requirements ensuring optimal system performance, growth, and scalability.

3.2.3.2 The contractor shall provide AV engineering support and AV engineering subject matter expertise; including VTC systems.

3.2.3.3 The contractor will perform C4ISR engineering/technical analysis on AV and VTC system requirements and provide results, recommendations and rationale to the government functional area (AV) engineering lead.

3.2.3.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.2.3.5 The contractor shall provide inputs to the development of engineering design and implementation plans for VTC networks and integrated AV systems. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.2.3.6 The contractor shall provide AV-related inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.2.3.7 The contractor shall provide AV-related inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.2.3.8 The contractor shall provide engineering support and subject matter expertise to provide technical inputs and recommendations associated with specific technologies to include: Cisco VTC Codecs, Polycom VTC Codecs, Extron AV matrix switchers, AMX control system hardware and software, and Crestron control system hardware and software.

3.2.4 Electronic Security Systems Engineering Requirements

3.2.4.1 The contractor shall provide engineering support and engineering subject matter expertise in facility security systems and capabilities including: Sensor Management System (SMS), Joint Perimeter Surveillance Command and Control System (JPSC2), Adaptive Networks (ADN), Intrusion Detection Systems (IDS), alarm systems integration, Emergency Response Networks, electronic sensors, Biometrics, Surveillance systems (closed circuit television, and acoustic sensors), Smart card technology, and Anti-Terrorism/Force Protection (AT/FP) information management support.

3.2.4.2 The contractor shall assist with the planning and designing of electronic physical security systems, capabilities and solutions; ensuring each design meets project requirements for performance, compatibility, growth, and scalability.

3.2.4.3 The contractor shall provide physical security systems subject matter expertise; including the technologies and functionalities listed in paragraph 3.2.4.1 above.

3.2.4.4 The contractor will perform C4ISR engineering/technical analysis on operational and or system requirements and provide results, recommendations and rationale to the government functional area (Physical Security Systems) engineering lead.

3.2.4.5 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.2.4.6 The contractor shall provide inputs to the development of physical security system design and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.2.4.7 The contractor shall provide functional area inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.2.4.8 The contractor shall provide physical security system related technical inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.2.5 Certification and Accreditation (Information Assurance) Engineering Requirements

3.2.5.1 The contractor shall provide Information Assurance and cyber security engineering subject matter expertise including: researching and processing security, technical and policy information to develop DoD Information Assurance Certification and Accreditation Process **(**DIACAP) packages and/or Risk Management Framework (RMF) packages for multiple networking solutions.

3.2.5.2 The contractor will apply the RMF and/or DIACAP to information systems/networks architectures, systems engineering, standards, processes, procedures, and specifications and evaluate and verify networks/systems' compliance to RMF and DIACAP related directives, the RMF security control assessment processes, and cybersecurity practices.

3.2.5.3 The contractor will perform engineering/technical analysis including the analysis of network protocols and the associated network logs and provide results, recommendations and rationale to the government functional area technical lead.

3.2.5.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required with both internal-SPAWAR and external stakeholders.

3.2.5.5 The contractor will ensure accreditation boundary, technical configurations, IA Controls and Security Technical Implementation Guides (STIG) requirements are documented and archived to meet DoD, Navy and Marine Corps network standards for an accredited baseline.

3.2.5.6 The contractor will support implementing and testing applicable IA controls, conducting testing activities, recording compliance status, maintaining IT security POA&Ms, and performing schedule reviews.

3.2.5.7 The contractor will perform vulnerability scanning, analyze results and assist in coordinating technical response and actions to facilitate remediation and correction of deficiencies identified.

3.2.5.8 The contractor will conduct network security reviews that include validation of current network security policy, requirements, design, comparative analysis, and assessment of the information assurance architecture.

3.2.5.9 The contractor will develop Security Implementation Plans, System Security Authorization Agreements, Installation Guides and Acceptance Test Plans for project deployment and conduct Security Test and Evaluation (ST&E) reviews, including system security reviews, to ensure that systems conform to all applicable STIGS.

3.2.6 Requirements Management Support Requirements

3.2.6.1 The contractor shall ensure C4ISR technical requirements have proper approvals and meet needs and expectations of stakeholders. The contractor shall maintain a comprehensive listing of requirements, document any changes to the requirements and communicate change back to the relevant stakeholders. The contractor shall analyze each requirement to ensure that it traces back to a documented need, goal or higher-level requirement.

3.2.6.2 The contractor shall attend GMB technical C4ISR team and stakeholder meetings to ensure requirements are identified and documented and to report requirements status.

3.2.6.3 The contractor shall support the System Change Request process which includes documenting requirements and all associated changes. Requirements changes shall be documented in the Requirements Analysis Documents (RAD) as applicable.

3.2.6.4 The contractor shall develop and maintain access control, document identifier schema, records folder structure, and file naming convention for requirements documents and matrices.

3.2.6.5 The contractor shall develop and maintain project and schedules using MS Project software for the tracking and reporting of requirements and managing progress.

3.2.6.6 The contractor shall support the project closeout process including delivery of As-built drawings, warranties, O&M manuals and spare parts turnover.

3.2.7 Configuration Management Support Requirements

3.2.7.1 The contractor shall develop and maintain access control, document identifier schema, records folder structure, repository and file naming convention.

3.2.7.2 The contractor shall implement policies, procedures, techniques, and tools required to manage and evaluate proposed changes and track the status and impact of these changes to requirements and the physical configuration of the C4ISR systems.

3.2.7.3 The contractor shall develop and maintain a CM Plan that includes provisions for the storing, tracking, and updating of all system information on each component, subsystem, and system cost.

3.2.7.4 The contractor shall establish and maintain consistency of C4ISR functional and physical project attributes requirements, design, and operational information throughout the entire project life-cycle.

3.2.7.5 The contractor shall provide technical and administrative direction for the development and implementation of procedures, functions, services, tools, processes and resources required to successfully design, develop, install and support complex C4ISR systems.

3.2.7.6 The contractor shall create and manage an accurate record of systems status and support documents as applicable changes are made to system requirements and/or design. The CM tracks these requirements throughout the project's life cycle from project inception through final acceptance to operations and maintenance.

3.2.7.7 The contractor shall facilitate orderly management of C4ISR system information and system changes to improve performance, reliability, or maintainability, extend life, reduce cost, reduce risk and liability, and/or correct defects.

3.2.7.8 The contractor shall track and control work products/configuration items in accordance with the C4I Work Product Initial Baseline detailed below:

- C4I Capabilities Matrix
- Meeting
- Staffing Plan
- Design Documents and Drawings
- Equipment/Materials Disposition Plan
- FRCB Packages
- Implementation Schedule
- Installation Strategy
- Integrated Logistic Support(ILS)/User's Logistics Support Summary(ULSS)
- Installation Design Plan/Drawings (IDP)
- MILCON Base Electronic Systems Engineering Plan (BESEP)
- SIPH Appendix Y Placemat
- Project Management Plan (PMP)
- Requirements Analysis Documents (RAD)
- Configuration Management Plan (CMP)
- Quality Assurance Plan (QAP)
- System Operational Verification Test (SOVT) Plans
- Transition & Cutover Plans

3.2.8 MILCON C4ISR Integration Support Functions

3.2.8.1 The contractor shall assist the government in providing Military Construction (MILCON) Base Electronics Engineering Systems Engineering Plans (BESEP) and associated deliverables in accordance with the SPAWAR Shore Installation Process Handbook.

3.2.8.2 The contractor shall assist the government in detailing pertinent C4ISR system technical parameters, physical characteristics, environmental and interface requirements and performance objectives that impact construction design.

3.2.8.3 The contractor shall support the government Chief Engineer/Lead Systems Engineer in ensuring C4ISR requirements and concerns/issues are being addressed through all phases of NAVFAC PAC-Architect/Engineer (A/E) design and construction effort. This includes factors such as; C4ISR system heat, power and cable infrastructure requirements, fire protection, electronic physical security, mission assurance criteria (MAC) and confidentiality levels, electromagnetic compatibility/interference (EMC/EMI), bonding/shielding/grounding are accounted for in the A/E design.

3.2.8.4 The contractor shall attend key building design reviews and charettes that occur during the Task Order Period of Performance (POP).

3.2.8.5 The contractor shall advise the government of lessons learned from previous MILCON projects to improve planning and execution of future GMB projects.

3.2.9 Technical Writing Support Requirements

3.2.9.1 The contractor shall attend and document design review and team meetings at SPAWAR, DPRI, and other sites as directed. The meeting minutes will document key technical discussions, agreements, and actions plans from the reviews and meetings.

3.2.9.2 The contractor shall make and properly record changes to C4ISR technical manuals, instructions and other documents. Where applicable, the contractor shall complete change page records.

3.2.9.3 The contractor shall collate material provided by the C4ISR Technical Team according to a defined order, i.e., numerical, alphabetical, by topic.

3.2.9.4 The contractor shall support the development, editing, proofreading, organizing and review of planning and design documents such as; System Operational Verification Tests (SOVT), Transition and Cutover Plans, Integrated Logistics Support Plans (ILSP), and Certification and Accreditation (C&A) plans in accordance with the Shore Installation Process Handbook. The documents will be formatted in MS Word and converted into portable document format (PDF) file for distribution.

3.2.9.5 The contractor shall compile and consolidate complex technical information and inputs received from project SMEs to produce engineering design documents and briefings. Information will be provided by the engineering team through discussions, interviews, reference documents, design drawings, notes and sketches.

3.2.9.6 The contractor shall generate and add titles, labels, tags, nameplates, and headings to documents and shall provide indexes and tables of contents for written material/documents.

3.2.9.7 The contractor shall write abstracts of documents to provide background for task analysis.

3.2.10 Drafting Support Requirements

3.2.10.1 The contractor shall perform C4ISR engineering drafting, drawing review, drawing control, and related services required in the design of electronic/communications equipment, systems and installations. Drawings shall be prepared in digital format using AUTOCAD software in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.2.10.2 The contractor shall produce mechanical, electrical/electronic drawings from rough engineering sketches in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.2.10.3 The contractor shall scale drawings to permit additions of details. This may require enlarging or reducing supplied drawings, providing "blow-ups" of selected zones of drawings to show appropriate details. When required, perform sectioning of various views to show "hidden" details.

3.2.10.4 The contractor shall prepare drawing layouts from one or more engineering sketches, which clearly emphasize elements necessary for timely installation, fabrication, acquisition or adaptations.

3.2.10.5 The contractor shall examine and check engineering drawings for compliance with cited specifications and to ensure necessary items are included in each drawing to support the assigned task.

3.2.10.6 The contractor shall draw graphs or charts in any scale from rough diagrams, construct proportions to represent intended percentages of displayed data, and choose appropriate media for the presentation.

3.2.10.7 The contractor shall prepare engineering drawings or sketches of existing equipment or installations where original drawings are inadequate or non-existent.

3.2.10.8 The contractor shall prepare illustrations, diagrams, graphs, charts, 3D renderings, or other appropriate graphic medium for various presentation media as MS Power Point briefing slides, reports, user manuals, and training materials.

3.2.10.9 The contractor shall manage and control IDP Master Drawing Sets, including the cross-referenced (X-REF) files.

3.2.10.10 The contractor shall update IDPs base on red-lines provided by the project design team.

3.2.11 Administrative and Clerical Support Requirements

3.2.11.1 The contractor shall attend and record minutes for meetings and reviews.

3.2.11.2 The contractor shall perform data entry into various data systems and management information systems to ensure current status. The contractor will retrieve status reports from databases.

3.2.11.3 Using MS Office software, including MS Project and MS SharePoint, the contractor shall perform editing, updating, proofing, general organizing and distribution of the C4ISR technical documents and status reports.

3.2.11.4 The contractor shall make reproduced copies of original technical documents and file printed copies as required to support meetings, briefings and deliverables. The contractor shall also maintain files of printed documents.

3.2.11.5 The contractor shall maintain administrative supplies supporting planning and execution and assist in ordering administrative supplies.

3.2.11.6 The contractor shall manage the scheduling of conference rooms to support meetings.

3.2.11.7 The contractor shall manage folders, files, and documents on the Department's share drive and MS SharePoint site.

3.2.11.8 The contractor shall provide assistance in coordinating site visits, and arranging travel (including assisting with travel requests and air, hotel and car reservations).

3.2.11.9 The contractor shall maintain and keep current documents that support effectiveness and organization such as the organization charts, recall rosters, project schedules and reports.

3.3 Task 3: Optical Transport Infrastructure

3.3.1 C4ISR Engineering Support Requirements

3.3.1.1 The contractor shall provide systems engineering expertise and technical inputs and recommendations to optimize effectiveness and efficiency of C4ISR system design, integration, installation and test.

3.3.1.2 The contractor shall utilize Marine Corps operational expertise and experience to add relevance to SSC-PAC's engineering/technical analysis of C4ISR systems, networks, human factors and facility requirements.

3.3.1.3 The contractor shall conduct and/or participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other meetings as required with both internal-SPAWAR and external stakeholders.

3.3.1.4 The contractor shall support the development of C4ISR engineering designs and implementation plans and support short-fused data calls, white papers, engineering analysis and technical research within the technical scope of work.

3.3.1.5 The contractor shall assist with design development planning for required C4ISR systems that includes site and equipment surveys, scheduling plans, work breakdown structures, and engineering analyses to optimize performance and meet system requirements.

3.3.1.6 The contractor shall assist in the development of a C4ISR Installation Design Plans (IDP), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details and diagrams.

3.3.1.7 The contractor shall provide technical input to all pertinent aspects of the functional area design and execution, such as: network infrastructure, networks, commercial services, messaging, voice, audio visual, video teleconferencing, emergency operations centers, technical control facilities, Sensitive Compartmented Information Facilities **(**SCIFs**),** and other pertinent C4ISR mission areas and capabilities.

3.3.1.8 The contractor shall support the government Subject Matter Expert (SME) Team by providing coordination and inputs to the following SPAWAR Shore Installation Process Handbook, Appendix Y, specific requirements and incremental reviews/packages.

3.3.1.8.1 Systems Requirements Review (SRR) Packages

The SRR Package consists of a Project Management Plan, Base Electronic System Engineering Plan, Rough Order of Magnitude Cost Estimate, Requirements Analysis Document, Responsibilities Matrix, Plan of Action and Milestones, Work Breakdown Structure, Integrated Master Schedule, Earned Value Management Plan and Capability Matrix.

3.3.1.8.2 Top Level Design Review (TLDR) Packages

The TLDR Package consists of a Concept Diagram, Operational Capabilities, Relationships, Functional Area Descriptions, Functional Block Diagrams, Responsibilities Matrix, and Functional Interface Diagram.

3.3.1.8.3 System Design Review (SDR) Packages

The SDR Package consists of a Capabilities Matrix Update, Top Level Design Update, Configuration Management Strategy, Transition Strategy, Installation Strategy, Test Strategy, System Design Document, and Procurement Strategy.

3.3.1.8.4 Critical Design Review (CDR) Packages

The CDR Package consists of a Final System Design Document, Configuration Management Plan, Quality Assurance (QA) Plan, Procurement Plan, Certification and Accreditation (C&A) Strategy, System Operation Verification Test (SOVT) Strategy, and Integrated Logistics Support (ILS) Strategy.

3.3.1.8.5 Preliminary Installation Design Review (PIDR) Packages
The PIDR Package consists of a 30% Installation Design Plan (IDP), C&A Plan, ILS Plan SOVT Plans and Transition & Cutover Plan.

3.3.1.8.6 Final Installation Design Review (FIDR) Packages
The FIDR Package consists of the 100% IDP and Fleet Readiness Control Board (FRCB) Package artifacts, drawings and design elements.

3.3.2 Network and C4ISR Infrastructure Engineering Requirements

3.3.2.1 The contractor shall provide engineering support and subject matter expertise for the installation design of voice and data capabilities throughout all layers of the Open Systems Interconnection Model (OSI Model) – hardware, software, routing, and network.

3.3.2.2 The contractor shall assist with the planning and designing of network infrastructure and enterprise network and voice solutions, including the development of an optical transport network engineering design and implementation plan; ensuring the design meets project requirements for performance, growth, and scalability.

3.3.2.3 The contractor shall provide C4ISR engineering support and network engineering subject matter expertise; including expertise in Optical Transport technology and a project focus area of Dense Wavelength Division Multiplexing (DWDM).

3.3.2.4 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including expertise in the performance characteristics of C4ISR systems being added to Marine Corp and Navy networks and the specifications for network interfaces to ensure effective integration and optimal network/voice performance.

3.3.2.5 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including knowledge of Ethernet and IP networking fundamentals, routers, routing protocols, virtual networks, LAN switches (core, distribution and access), firewalls, voice gateways, network hardware and network architecture design.

3.3.2.6 The contractor will perform C4ISR engineering/technical analysis on networking and or system requirements and provide results, recommendations and rationale to the government functional area (networks) technical lead.

3.3.2.7 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.3.2.8 The contractor shall provide technical inputs to the development of network and voice engineering designs and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.3.2.9 The contractor shall support site surveys and the development of network site survey reports in accordance with the SPAWAR Shore Installation Process Handbook.

3.3.2.10 The contractor shall assist in the development of network and voice Installation Design Plans (IDPs), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.3.3 Electronic Security Systems Engineering Requirements

3.3.3.1 The contractor shall provide engineering support and engineering subject matter expertise in facility security systems and capabilities including: Sensor Management System (SMS), Joint Perimeter Surveillance Command and Control System (JPSC2), Adaptive Networks (ADN), Intrusion Detection Systems (IDS), alarm systems integration, Emergency Response Networks, electronic sensors, Biometrics, Surveillance systems (closed circuit television, and acoustic sensors), Smart card technology, and Anti-Terrorism/Force Protection (AT/FP) information management support.

3.3.3.2 The contractor shall assist with the planning and designing of electronic physical security systems, capabilities and solutions; ensuring each design meets project requirements for performance, compatibility, growth, and scalability.

3.3.3.3 The contractor shall provide physical security systems subject matter expertise; including the technologies and functionalities listed in paragraph 3.3.4.1 above.

3.3.3.4 The contractor will perform C4ISR engineering/technical analysis on operational and or system requirements and provide results, recommendations and rationale to the government functional area (Physical Security Systems) engineering lead.

3.3.3.5 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.3.3.6 The contractor shall provide inputs to the development of physical security system design and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.3.3.7 The contractor shall provide functional area inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.3.3.8 The contractor shall provide physical security system related technical inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.3.4 Certification and Accreditation (Information Assurance) Engineering Requirements

3.3.4.1 The contractor shall provide Information Assurance and cyber security engineering subject matter expertise including: researching and processing security, technical and policy information to develop DoD Information Assurance Certification and Accreditation Process **(**DIACAP) packages and/or Risk Management Framework (RMF) packages for multiple networking solutions.

3.3.4.2 The contractor will apply the RMF and/or DIACAP to information systems/networks architectures, systems engineering, standards, processes, procedures, and specifications and evaluate and verify networks/systems' compliance to RMF and DIACAP related directives, the RMF security control assessment processes, and cybersecurity practices.

3.3.4.3 The contractor will perform engineering/technical analysis including the analysis of network protocols and the associated network logs and provide results, recommendations and rationale to the government functional area technical lead.

3.3.4.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required with both internal-SPAWAR and external stakeholders.

3.3.4.5 The contractor will ensure accreditation boundary, technical configurations, IA Controls and Security Technical Implementation Guides (STIG) requirements are documented and archived to meet DoD, Navy and Marine Corps network standards for an accredited baseline.

3.3.4.6 The contractor will support implementing and testing applicable IA controls, conducting testing activities, recording compliance status, maintaining IT security POA&Ms, and performing schedule reviews.

3.3.4.7 The contractor will perform vulnerability scanning, analyze results and assist in coordinating technical response and actions to facilitate remediation and correction of deficiencies identified.

3.3.4.8 The contractor will conduct network security reviews that include validation of current network security policy, requirements, design, comparative analysis, and assessment of the information assurance architecture.

3.3.4.9 The contractor will develop Security Implementation Plans, System Security Authorization Agreements, Installation Guides and Acceptance Test Plans for project

deployment and conduct Security Test and Evaluation (ST&E) reviews, including system security reviews, to ensure that systems conform to all applicable STIGS.

3.3.5 Requirements Management Support Requirements

3.3.5.1 The contractor shall ensure C4ISR technical requirements have proper approvals and meet needs and expectations of stakeholders. The contractor shall maintain a comprehensive listing of requirements, document any changes to the requirements and communicate change back to the relevant stakeholders. The contractor shall analyze each requirement to ensure that it traces back to a documented need, goal or higher-level requirement.

3.3.5.2 The contractor shall attend technical C4ISR team and stakeholder meetings to ensure requirements are identified and documented and to report requirements status.

3.3.5.3 The contractor shall support the System Change Request process which includes documenting requirements and all associated changes. Requirements changes shall be documented in the Requirements Analysis Documents (RAD) as applicable.

3.3.5.4 The contractor shall develop and maintain access control, document identifier schema, records folder structure, and file naming convention for requirements documents and matrices.

3.3.5.5 The contractor shall develop and maintain project schedules using MS Project software for the tracking and reporting of requirements and managing progress.

3.3.5.6 The contractor shall support the project closeout process including delivery of As-built drawings, warranties, O&M manuals and spare parts turnover.

3.3.6 Configuration Management Support Requirements

3.3.6.1 The contractor shall develop and maintain access control, document identifier schema, records folder structure, repository and file naming convention.

3.3.6.2 The contractor shall implement policies, procedures, techniques, and tools required to manage and evaluate proposed changes and track the status and impact of these changes to requirements and the physical configuration of the C4ISR systems.

3.3.6.3 The contractor shall develop and maintain a CM Plan that includes provisions for the storing, tracking, and updating of all system information on each component, subsystem, and system cost.

3.3.6.4 The contractor shall establish and maintain consistency of C4ISR functional and physical project attributes requirements, design, and operational information throughout the entire project life-cycle.

3.3.6.5 The contractor shall provide technical and administrative direction for the development and implementation of procedures, functions, services, tools, processes and resources required to successfully design, develop, install and support complex C4ISR systems.

3.3.6.6 The contractor shall create and manage an accurate record of systems status and support documents as applicable changes are made to system requirements and/or design. The CM tracks these requirements throughout the project's life cycle from project inception through final acceptance to operations and maintenance.

3.3.6.7 The contractor shall facilitate orderly management of C4ISR system information and system changes to improve performance, reliability, or maintainability, extend life, reduce cost, reduce risk and liability, and/or correct defects.

3.3.6.8 The contractor shall track and control work products/configuration items in accordance with the C4I Work Product Initial Baseline detailed below:

- C4I Capabilities Matrix
- Meeting Minutes
- Staffing Plan
- Design Documents and Drawings
- Equipment/Materials Disposition Plan
- FRCB Packages
- Implementation Schedule
- Installation Strategy
- Integrated Logistic Support(ILS)/User's Logistics Support Summary(ULSS)
- Installation Design Plan/Drawings (IDP)
- MILCON Base Electronic Systems Engineering Plan (BESEP)
- SIPH Appendix Y Placemat
- Project Management Plan (PMP)
- Requirements Analysis Documents (RAD)
- Configuration Management Plan (CMP)
- Quality Assurance Plan (QAP)
- System Operational Verification Test (SOVT) Plans
- Transition & Cutover Plans

3.3.7 MILCON C4ISR Integration Support Functions

3.3.7.1 The contractor shall assist the government in providing Military Construction (MILCON) Base Electronics Engineering Systems Engineering Plans (BESEP) and associated deliverables in accordance with the SPAWAR Shore Installation Process Handbook.

3.3.7.2 The contractor shall assist the government in detailing pertinent C4ISR system technical parameters, physical characteristics, environmental and interface requirements and performance objectives that impact construction design.

3.3.7.3 The contractor shall support the government Chief Engineer/Lead Systems Engineer in ensuring C4ISR requirements and concerns/issues are being addressed through all phases of NAVFAC PAC-Architect/Engineer (A/E) design and construction effort. This includes factors such as; C4ISR system heat, power and cable infrastructure requirements, fire protection, electronic physical security, mission assurance criteria (MAC) and confidentiality levels, electromagnetic compatibility/interference (EMC/EMI), bonding/shielding/grounding are accounted for in the A/E design.

3.3.7.4 The contractor shall attend key building design reviews and charettes that occur during the Task Order Period of Performance (POP).

3.3.7.5 The contractor shall advise the government of lessons learned from previous MILCON projects to improve planning and execution of future projects.

3.3.8 Technical Writing Support Requirements

3.3.8.1 The contractor shall attend and document design review and team meetings at SPAWAR, DPRI, and other sites as directed. The meeting minutes will document key technical discussions, agreements, and actions plans from the reviews and meetings.

3.3.8.2 The contractor shall make and properly record changes to C4ISR technical manuals, instructions and other documents. Where applicable, the contractor shall complete change page records.

3.3.8.3 The contractor shall collate material provided by the C4ISR Technical Team according to a defined order, i.e., numerical, alphabetical, by topic.

3.3.8.4 The contractor shall support the development, editing, proofreading, organizing and review of planning and design documents such as; System Operational Verification Tests (SOVT), Transition and Cutover Plans, Integrated Logistics Support Plans (ILSP), and Certification and Accreditation (C&A) plans in accordance with the Shore Installation Process Handbook. The documents will be formatted in MS Word and converted into portable document format (PDF) file for distribution.

3.3.8.5 The contractor shall compile and consolidate complex technical information and inputs received from project SMEs to produce engineering design documents and briefings. Information will be provided by the engineering team through discussions, interviews, reference documents, design drawings, notes and sketches.

3.3.8.6 The contractor shall generate and add titles, labels, tags, nameplates, and headings to documents and shall provide indexes and tables of contents for written material/documents.

3.3.8.7 The contractor shall write abstracts of documents to provide background for task analysis.

3.3.9 Drafting Support Requirements

3.3.9.1 The contractor shall perform C4ISR engineering drafting, drawing review, drawing control, and related services required in the design of electronic/communications equipment, systems and installations. Drawings shall be prepared in digital format using AUTOCAD software in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.3.9.2 The contractor shall produce mechanical, electrical/electronic drawings from rough engineering sketches in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.3.9.3 The contractor shall scale drawings to permit additions of details. This may require enlarging or reducing supplied drawings, providing "blow-ups" of selected zones of drawings to show appropriate details. When required, perform sectioning of various views to show "hidden" details.

3.3.9.4 The contractor shall prepare drawing layouts from one or more engineering sketches, which clearly emphasize elements necessary for timely installation, fabrication, acquisition or adaptations.

3.3.9.5 The contractor shall examine and check engineering drawings for compliance with cited specifications and to ensure necessary items are included in each drawing to support the assigned task.

3.3.9.6 The contractor shall draw graphs or charts in any scale from rough diagrams, construct proportions to represent intended percentages of displayed data, and choose appropriate media for the presentation.

3.3.9.7 The contractor shall prepare engineering drawings or sketches of existing equipment or installations where original drawings are inadequate or non-existent.

3.3.9.8 The contractor shall prepare illustrations, diagrams, graphs, charts, 3D renderings, or other appropriate graphic medium for various presentation media as MS Power Point briefing slides, reports, user manuals, and training materials.

3.3.9.9 The contractor shall manage and control IDP Master Drawing Sets, including the cross-referenced (X-REF) files.

3.3.9.10 The contractor shall update IDPs base on red-lines provided by the project design team.

3.3.10 Administrative and Clerical Support Requirements

3.3.10.1 The contractor shall attend and record minutes for meetings and reviews

3.3.10.2 The contractor shall perform data entry into various data systems and management information systems to ensure current status. The contractor will retrieve status reports from databases.

3.3.10.3 Using MS Office software, including MS Project and MS SharePoint, the contractor shall perform editing, updating, proofing, general organizing and distribution of the technical documents and status reports.

3.3.10.4 The contractor shall make reproduced copies of original technical documents and file printed copies as required to support meetings, briefings and deliverables. The contractor shall also maintain files of printed documents.

3.3.10.5 The contractor shall maintain administrative supplies supporting planning and execution and assist in ordering administrative supplies.

3.3.10.6 The contractor shall manage the scheduling of conference rooms to support meetings.

3.3.10.7 The contractor shall manage folders, files, and documents on the Department's share drive and MS SharePoint site.

3.3.10.8 The contractor shall provide assistance in coordinating site visits, and arranging travel (including assisting with travel requests and air, hotel and car reservations).

3.3.10.9 The contractor shall maintain and keep current documents that support effectiveness and organization such as the organization charts, recall rosters, project schedules and reports.

3.4 Task 4: Area Distribution Node (ADN) Facility

3.4.1 C4ISR Engineering Support Requirements

3.4.1.1 The contractor shall provide systems engineering expertise and technical inputs and recommendations to optimize effectiveness and efficiency of C4ISR system design, integration, installation and test.

3.4.1.2 The contractor shall utilize Marine Corps operational expertise and experience to add relevance to SSC-PAC's engineering/technical analysis of C4ISR systems, networks, human factors and facility requirements.

3.4.1.3 The contractor shall conduct and/or participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other meetings as required with both internal-SPAWAR and external stakeholders.

3.4.1.4 The contractor shall support the development of C4ISR engineering designs and implementation plans and support short-fused data calls, white papers, engineering analysis and technical research within the technical and scope of work.

3.4.1.5 The contractor shall assist with design development planning for required C4ISR systems that includes site and equipment surveys, scheduling plans, work breakdown structures, and engineering analyses to optimize performance and meet system requirements.

3.4.1.6 The contractor shall assist in the development of a C4ISR Installation Design Plans (IDP), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details and diagrams.

3.4.1.7 The contractor shall provide technical input to all pertinent aspects of the functional area design and execution, such as: network infrastructure, networks, commercial services, messaging, voice, audio visual, video teleconferencing, emergency operations centers, technical control facilities, Sensitive Compartmented Information Facilities **(**SCIFs**),** and other pertinent C4ISR mission areas and capabilities.

3.4.1.8 The contractor shall support the government Subject Matter Expert (SME) Team by providing coordination and inputs to the following SPAWAR Shore Installation Process Handbook, Appendix Y, specific requirements and incremental reviews/packages.

3.4.1.8.1 Systems Requirements Review (SRR) Packages

The SRR Package consists of a Project Management Plan, Base Electronic System Engineering Plan, Rough Order of Magnitude Cost Estimate, Requirements Analysis Document, Responsibilities Matrix, Plan of Action and Milestones, Work Breakdown Structure, Integrated Master Schedule, Earned Value Management Plan and Capability Matrix.

3.4.1.8.2 Top Level Design Review (TLDR) Packages

The TLDR Package consists of a Concept Diagram, Operational Capabilities, Relationships, Functional Area Descriptions, Functional Block Diagrams, Responsibilities Matrix, and Functional Interface Diagram.

3.4.1.8.3 System Design Review (SDR) Packages

The SDR Package consists of a Capabilities Matrix Update, Top Level Design Update, Configuration Management Strategy, Transition Strategy, Installation Strategy, Test Strategy, System Design Document, and Procurement Strategy.

3.4.1.8.4 Critical Design Review (CDR) Packages

The CDR Package consists of a Final System Design Document, Configuration Management Plan, Quality Assurance (QA) Plan, Procurement Plan, Certification and Accreditation (C&A) Strategy, System Operation Verification Test (SOVT) Strategy, and Integrated Logistics Support (ILS) Strategy.

3.4.1.8.5 Preliminary Installation Design Review (PIDR) Packages

The PIDR Package consists of a 30% Installation Design Plan (IDP), C&A Plan, ILS Plan SOVT Plans and Transition & Cutover Plan.

3.4.1.8.6 Final Installation Design Review (FIDR) Packages
The FIDR Package consists of the 100% IDP and Fleet Readiness Control Board (FRCB) Package artifacts, drawings and design elements.

3.4.2 Network and C4ISR Infrastructure Engineering Requirements

3.4.2.1 The contractor shall provide engineering support and subject matter expertise in the installation design of voice and data capabilities throughout all layers of the Open Systems Interconnection Model (OSI Model) – hardware, software, routing, and network.

3.4.2.2 The contractor shall assist with the planning and designing of network infrastructure and enterprise network and voice solutions, including the development of an optical transport network engineering design and implementation plan; ensuring the design meets project requirements for performance, growth, and scalability.

3.4.2.3 The contractor shall provide C4ISR engineering support and network engineering subject matter expertise; including expertise in Optical Transport technology and a project focus area of Dense Wavelength Division Multiplexing (DWDM).

3.4.2.4 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including expertise in the performance characteristics of C4ISR systems being added to Marine Corp and Navy networks and the specifications for network interfaces to ensure effective integration and optimal network/voice performance.

3.4.2.5 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise; including knowledge of Ethernet and IP networking fundamentals, routers, routing protocols, virtual networks, LAN switches (core, distribution and access), firewalls, voice gateways, network hardware and network architecture design.

3.4.2.6 The contractor will perform C4ISR engineering/technical analysis on networking and or system requirements and provide results, recommendations and rationale to the government functional area (networks) technical lead.

3.4.2.7 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.4.2.8 The contractor shall provide technical inputs to the development of network and voice engineering designs and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.4.2.9 The contractor shall support site surveys and the development of network site survey reports in accordance with the SPAWAR Shore Installation Process Handbook.

3.4.2.10 The contractor shall assist in the development of network and voice Installation Design Plans (IDPs), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.4.3 Electronic Security Systems Engineering Requirements

3.4.3.1 The contractor shall provide engineering support and engineering subject matter expertise in facility security systems and capabilities including: Sensor Management System (SMS), Joint Perimeter Surveillance Command and Control System (JPSC2), Adaptive Networks (ADN), Intrusion Detection Systems (IDS), alarm systems integration, Emergency Response Networks, electronic sensors, Biometrics, Surveillance systems (closed circuit television, and acoustic sensors), Smart card technology, and Anti-Terrorism/Force Protection (AT/FP) information management support.

3.4.3.2 The contractor shall assist with the planning and designing of electronic physical security systems, capabilities; ensuring each design meets project requirements for performance, compatibility, growth, and scalability.

3.4.3.3 The contractor shall provide physical security systems subject matter expertise; including the technologies and functionalities listed in paragraph 3.4.3.1 above.

3.4.3.4 The contractor will perform C4ISR engineering/technical analysis on operational and or system requirements and provide results, recommendations and rationale to the government functional area (Physical Security Systems) engineering lead.

3.4.3.5 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.4.3.6 The contractor shall provide inputs to the development of physical security system design and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.4.3.7 The contractor shall provide functional area inputs to the development of various documents, plans and briefings including: site and equipment surveys, scheduling plans, work breakdown structure, and engineering analyses to optimize performance and meet system requirements.

3.4.3.8 The contractor shall provide physical security system related technical inputs to the development of SPAWAR Shore Installation Process Handbook compliant IDPs including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.4.4 Certification and Accreditation (Information Assurance) Engineering Requirements

3.4.4.1 The contractor shall provide Information Assurance and cyber security engineering subject matter expertise: researching and processing security, technical and policy information to develop DoD Information Assurance Certification and Accreditation Process **(**DIACAP) packages and/or Risk Management Framework (RMF) packages for multiple networking solutions.

3.4.4.2 The contractor will apply the RMF and/or DIACAP to information systems/networks architectures, systems engineering, standards, processes, procedures, and specifications and evaluate and verify networks/systems' compliance to RMF and DIACAP related directives, the RMF security control assessment processes, and cybersecurity practices.

3.4.4.3 The contractor will perform engineering/technical analysis including the analysis of network protocols and the associated network logs and provide results, recommendations and rationale to the government functional area technical lead.

3.4.4.4 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required with both internal-SPAWAR and external stakeholders.

3.4.4.5 The contractor will ensure accreditation boundary, technical configurations, IA Controls and Security Technical Implementation Guides (STIG) requirements are documented and archived to meet DoD, Navy and Marine Corps network standards for an accredited baseline.

3.4.4.6 The contractor will support implementing and testing applicable IA controls, conducting testing activities, recording compliance status, maintaining IT security POA&Ms, and performing schedule reviews.

3.4.4.7 The contractor will perform vulnerability scanning, analyze results and assist in coordinating technical response and actions to facilitate remediation and correction of deficiencies identified.

3.4.4.8 The contractor will conduct network security reviews that include validation of current network security policy, requirements, design, comparative analysis, and assessment of the information assurance architecture.

3.4.4.9 The contractor will develop Security Implementation Plans, System Security Authorization Agreements, Installation Guides and Acceptance Test Plans for project deployment and conduct Security Test and Evaluation (ST&E) reviews, including system security reviews, to ensure that systems conform to all applicable STIGS.

3.4.5 Requirements Management Support Requirements

3.4.5.1 The contractor shall ensure C4ISR technical requirements have proper approvals and meet needs and expectations of stakeholders. The contractor shall maintain a comprehensive listing of requirements, document any changes to the requirements and

communicate change back to the relevant stakeholders. The contractor shall analyze each requirement to ensure that it traces back to a documented need, goal or higher-level requirement.

3.4.5.2 The contractor shall attend GMB technical C4ISR team and stakeholder meetings to ensure requirements are identified and documented and to report requirements status.

3.4.5.3 The contractor shall support the System Change Request process which includes documenting requirements and all associated changes. Requirements changes shall be documented in the Requirements Analysis Documents (RAD) as applicable.

3.4.5.4 The contractor shall develop and maintain access control, document identifier schema, records folder structure, and file naming convention for requirements documents and matrices.

3.4.5.5 The contractor shall develop and maintain project and schedules using MS Project software for the tracking and reporting of requirements and managing progress.

3.4.5.6 The contractor shall support the project closeout process including delivery of As-built drawings, warranties, O&M manuals and spare parts turnover.

3.4.6 Configuration Management Support Requirements

3.4.6.1 The contractor shall develop and maintain access control, document identifier schema, records folder structure, repository and file naming convention.

3.4.6.2 The contractor shall implement policies, procedures, techniques, and tools required to manage and evaluate proposed changes and track the status and impact of these changes to requirements and the physical configuration of the C4ISR systems.

3.4.6.3 The contractor shall develop and maintain a CM Plan that includes provisions for the storing, tracking, and updating of all system information on each component, subsystem, and system cost.

3.4.6.4 The contractor shall establish and maintain consistency of C4ISR functional and physical project attributes requirements, design, and operational information throughout the entire project life-cycle.

3.4.6.5 The contractor shall provide technical and administrative direction for the development and implementation of procedures, functions, services, tools, processes and resources required to successfully design, develop, install and support complex C4ISR systems.

3.4.6.6 The contractor shall create and manage an accurate record of systems status and support documents as applicable changes are made to system requirements and/or design. The CM tracks these requirements throughout the project’s life cycle from project inception through final acceptance to operations and maintenance.

3.4.6.7 The contractor shall facilitate orderly management of C4ISR system information and system changes to improve performance, reliability, or maintainability, extend life, reduce cost, reduce risk and liability, and/or correct defects.

3.4.6.8 The contractor shall track and control work products/configuration items in accordance with the C4I Work Product Initial Baseline detailed below:

- C4I Capabilities Matrix
- Meeting Minutes
- Staffing Plan
- Design Documents and Drawings
- Equipment/Materials Disposition Plan
- FRCB Packages
- Implementation Schedule
- Installation Strategy
- Integrated Logistic Support(ILS)/User's Logistics Support Summary(ULSS)
- Installation Design Plan/Drawings (IDP)
- MILCON Base Electronic Systems Engineering Plan (BESEP)
- SIPH Appendix Y Placemat
- Project Management Plan (PMP)
- Requirements Analysis Documents (RAD)
- Configuration Management Plan (CMP)
- Quality Assurance Plan (QAP)
- System Operational Verification Test (SOVT) Plans
- Transition & Cutover Plans

3.4.7 MILCON C4ISR Integration Support Functions

3.4.7.1 The contractor shall assist the government in providing Military Construction (MILCON) Base Electronics Engineering Systems Engineering Plans (BESEP) and associated deliverables in accordance with the SPAWAR Shore Installation Process Handbook.

3.4.7.2 The contractor shall assist the government in detailing pertinent C4ISR system technical parameters, physical characteristics, environmental and interface requirements and performance objectives that impact construction design.

3.4.7.3 The contractor shall support the government Chief Engineer/Lead Systems Engineer in ensuring C4ISR requirements and concerns/issues are being addressed through all phases of NAVFAC PAC-Architect/Engineer (A/E) design and construction effort. This includes factors such as; C4ISR system heat, power and cable infrastructure requirements, fire protection, electronic physical security, mission assurance criteria (MAC) and confidentiality levels, electromagnetic compatibility/interference (EMC/EMI), bonding/shielding/grounding are accounted for in the A/E design.

3.4.7.4 The contractor shall attend key building design reviews and charettes that occur during the Task Order Period of Performance (POP).

3.4.7.5 The contractor shall advise the government of lessons learned from previous MILCON projects to improve planning and execution of future projects.

3.4.8 Technical Writing Support Requirements

3.4.8.1 The contractor shall attend and document design review and team meetings at SPAWAR, DPRI, and other sites as directed. The meeting minutes will document key technical discussions, agreements, and actions plans from the reviews and meetings.

3.4.8.2 The contractor shall make and properly record changes to C4ISR technical manuals, instructions and other documents. Where applicable, the contractor shall complete change page records.

3.4.8.3 The contractor shall collate material provided by the C4ISR Technical Team according to a defined order, i.e., numerical, alphabetical, by topic.

3.4.8.4 The contractor shall support the development, editing, proofreading, organizing and review of planning and design documents such as; System Operational Verification Tests (SOVT), Transition and Cutover Plans, Integrated Logistics Support Plans (ILSP), and Certification and Accreditation (C&A) plans in accordance with the Shore Installation Process Handbook. The documents will be formatted in MS Word and converted into portable document format (PDF) file for distribution.

3.4.8.5 The contractor shall compile and consolidate complex technical information and inputs received from project SMEs to produce engineering design documents and briefings. Information will be provided by the engineering team through discussions, interviews, reference documents, design drawings, notes and sketches.

3.4.8.6 The contractor shall generate and add titles, labels, tags, nameplates, and headings to documents and shall provide indexes and tables of contents for written material/documents.

3.4.8.7 The contractor shall write abstracts of documents to provide background for task analysis.

3.4.9 Drafting Support Requirements

3.4.9.1 The contractor shall perform C4ISR engineering drafting, drawing review, drawing control, and related services required in the design of electronic/communications equipment, systems and installations. Drawings shall be prepared in digital format using AUTOCAD software in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.4.9.2 The contractor shall produce mechanical, electrical/electronic drawings from rough engineering sketches in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.4.9.3 The contractor shall scale drawings to permit additions of details. This may require enlarging or reducing supplied drawings, providing "blow-ups" of selected zones of drawings to show appropriate details. When required, perform sectioning of various views to show "hidden" details.

3.4.9.4 The contractor shall prepare drawing layouts from one or more engineering sketches, which clearly emphasize elements necessary for timely installation, fabrication, acquisition or adaptations.

3.4.9.5 The contractor shall examine and check engineering drawings for compliance with cited specifications and to ensure necessary items are included in each drawing to support the assigned task.

3.4.9.6 The contractor shall draw graphs or charts in any scale from rough diagrams, construct proportions to represent intended percentages of displayed data, and choose appropriate media for the presentation.

3.4.9.7 The contractor shall prepare engineering drawings or sketches of existing equipment or installations where original drawings are inadequate or non-existent.

3.4.9.8 The contractor shall prepare illustrations, diagrams, graphs, charts, 3D renderings, or other appropriate graphic medium for various presentation media as MS Power Point briefing slides, reports, user manuals, and training materials.

3.4.9.9 The contractor shall manage and control IDP Master Drawing Sets, including the cross-referenced (X-REF) files.

3.4.9.10 The contractor shall update IDPs base on red-lines provided by the project design team.

3.4.10 Administrative and Clerical Support Requirements

3.4.10.1 The contractor shall attend and record minutes for meetings and reviews.

3.4.10.2 The contractor shall perform data entry into various data systems and management information systems to ensure current status. The contractor will retrieve status reports from databases.

3.4.10.3 Using MS Office software, including MS Project and MS SharePoint, the contractor shall perform editing, updating, proofing, general organizing and distribution of the technical documents and status reports.

3.4.10.4 The contractor shall make reproduced copies of original technical documents and file printed copies as required to support meetings, briefings and deliverables. The contractor shall also maintain files of printed documents.

3.4.10.5 The contractor shall maintain administrative supplies supporting planning and execution and assist in ordering administrative supplies.

3.4.10.6 The contractor shall manage the scheduling of conference rooms to support meetings.

3.4.10.7 The contractor shall manage folders, files, and documents on the Department's share drive and MS SharePoint site.

3.4.10.8 The contractor shall provide assistance in coordinating site visits, and arranging travel (including assisting with travel requests and air, hotel and car reservations).

3.4.10.9 The contractor shall maintain and keep current documents that support effectiveness and organization such as the organization charts, recall rosters, project schedules and reports.

3.5 Task 5: Program Management Support

3.5.1 C4ISR Engineering Support Requirements

3.5.1.1 The contractor shall provide systems engineering expertise and technical inputs and recommendations to optimize effectiveness and efficiency of C4ISR system design, integration, installation and test.

3.5.1.2 The contractor shall utilize Marine Corps operational expertise and experience to add relevance to SSC-PAC's engineering/technical analysis of GMB C4ISR systems, networks, human factors and facility requirements.

3.5.1.3 The contractor shall conduct and/or participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other meetings as required with both internal-SPAWAR and external stakeholders.

3.5.1.4 The contractor shall support the development of C4ISR engineering designs and implementation plans and support short-fused data calls, white papers, engineering analysis and technical research within the technical and program scope of work.

3.5.1.5 The contractor shall assist with design development planning for required C4ISR systems that includes site and equipment surveys, scheduling plans, work breakdown structures, and engineering analyses to optimize performance and meet system requirements.

3.5.1.6 The contractor shall assist in the development of a C4ISR Installation Design Plans (IDP), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details and diagrams for the GMB Program.

3.5.1.7 The contractor shall provide technical input to all pertinent aspects of the GMB Program's functional area design and execution, such as: network infrastructure, networks, commercial services, messaging, voice, audio visual, video teleconferencing, emergency operations centers, technical control facilities, Sensitive Compartmented Information Facilities **(**SCIFs**),** and other pertinent C4ISR mission areas and capabilities.

3.5.1.8 The contractor shall support the government Subject Matter Expert (SME) Team by providing coordination and inputs to the following SPAWAR Shore Installation Process Handbook, Appendix Y, specific requirements and incremental reviews/packages.

3.5.1.8.1 Systems Requirements Review (SRR) Packages

The SRR Package consists of a Project Management Plan, Base Electronic System Engineering Plan, Rough Order of Magnitude Cost Estimate, Requirements Analysis Document, Responsibilities Matrix, Plan of Action and Milestones, Work Breakdown Structure, Integrated Master Schedule, Earned Value Management Plan and Capability Matrix.

3.5.1.8.2 Top Level Design Review (TLDR) Packages

The TLDR Package consists of a Concept Diagram, Operational Capabilities, Relationships, Functional Area Descriptions, Functional Block Diagrams, Responsibilities Matrix, and Functional Interface Diagram.

3.5.1.8.3 System Design Review (SDR) Packages

The SDR Package consists of a Capabilities Matrix Update, Top Level Design Update, Configuration Management Strategy, Transition Strategy, Installation Strategy, Test Strategy, System Design Document, and Procurement Strategy.

3.5.1.8.4 Critical Design Review (CDR) Packages

The CDR Package consists of a Final System Design Document, Configuration Management Plan, Quality Assurance (QA) Plan, Procurement Plan, Certification and Accreditation (C&A) Strategy, System Operation Verification Test (SOVT) Strategy, and Integrated Logistics Support (ILS) Strategy.

3.5.1.8.5 Preliminary Installation Design Review (PIDR) Packages

The PIDR Package consists of a 30% Installation Design Plan (IDP), C&A Plan, ILS Plan SOVT Plans and Transition & Cutover Plan.

3.5.1.8.6 Final Installation Design Review (FIDR) Packages

The FIDR Package consists of the 100% IDP and Fleet Readiness Control Board (FRCB) Package artifacts, drawings and design elements.

3.5.2 Network and C4ISR Infrastructure Engineering Requirements

3.5.2.1 The contractor shall provide engineering support and subject matter expertise for the GMB Project in the installation design of voice and data capabilities throughout all layers of the Open Systems Interconnection Model (OSI Model) – hardware, software, routing, and network.

3.5.2.2 The contractor shall assist with the planning and designing of network infrastructure and enterprise network and voice solutions, including the development of an optical transport network engineering design and implementation plan in support of the GMB Project; ensuring the design meets project requirements for performance, growth, and scalability.

3.5.2.3 The contractor shall provide C4ISR engineering support and network engineering subject matter expertise for the GMB Project; including expertise in Optical Transport technology and a project focus area of Dense Wavelength Division Multiplexing (DWDM).

3.5.2.4 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise for the GMB Project; including expertise in the performance characteristics of C4ISR systems being added to Marine Corp and Navy networks and the specifications for network interfaces to ensure effective integration and optimal network/voice performance.

3.5.2.5 The contractor shall provide C4ISR engineering support and network/voice engineering subject matter expertise for the GMB Project; including knowledge of Ethernet and IP networking fundamentals, routers, routing protocols, virtual networks, LAN switches (core, distribution and access), firewalls, voice gateways, network hardware and network architecture design.

3.5.2.6 The contractor will perform C4ISR engineering/technical analysis on networking and or system requirements and provide results, recommendations and rationale to the government functional area (networks) technical lead.

3.5.2.7 The contractor will participate in technical reviews, working group meetings, Integrated Planning Team (IPT) sessions, and other technical meetings as required.

3.5.2.8 The contractor shall provide technical inputs to the development of network and voice engineering designs and implementation plans. All engineering inputs will be provided in a timely manner, neatly prepared, comprehensive and accurate.

3.5.2.9 The contractor shall support site surveys and the development of network site survey reports in accordance with the SPAWAR Shore Installation Process Handbook.

3.5.2.10 The contractor shall assist in the development of network and voice Installation Design Plans (IDPs), including elements such as block diagrams, wiring diagrams, cabling diagrams, signal flow diagram, and other miscellaneous details, drawings and diagrams.

3.5.3 Requirements Management Support Requirements

3.5.3.1 The contractor shall ensure C4ISR technical requirements have proper approvals and meet needs and expectations of stakeholders. The contractor shall maintain a comprehensive listing of program requirements, document any changes to the requirements and communicate change back to the relevant stakeholders. The contractor shall analyze each requirement to ensure that it traces back to a documented need, goal or higher-level requirement.

3.5.3.2 The contractor shall attend GMB technical C4ISR team and stakeholder meetings to ensure requirements are identified and documented and to report requirements status.

3.5.3.3 The contractor shall support the System Change Request process which includes documenting requirements and all associated changes. Requirements changes shall be documented in the Requirements Analysis Documents (RAD) as applicable.

3.5.3.4 The contractor shall develop and maintain access control, document identifier schema, records folder structure, and file naming convention for requirements documents and matrices.

3.5.3.5 The contractor shall develop and maintain project and GMB Program schedules using MS Project software for the tracking and reporting of requirements and managing progress.

3.5.3.6 The contractor shall support the project closeout process including delivery of As-built drawings, warranties, O&M manuals and spare parts turnover.

3.5.3.7 The contractor shall submit an Engineering and Technical Services Accomplishment Report at the end of the contract. The report will provide accomplishments and services specified in paragraph 3.5.3.

3.5.4 Configuration Management Support Requirements

3.5.4.1 The contractor shall develop and maintain access control, document identifier schema, records folder structure, repository and file naming convention.

3.5.4.2 The contractor shall implement policies, procedures, techniques, and tools required to manage and evaluate proposed changes and track the status and impact of these changes to requirements and the physical configuration of the C4ISR systems.

3.5.4.3 The contractor shall develop and maintain a CM Plan that includes provisions for the storing, tracking, and updating of all system information on each component, subsystem, and system cost.

3.5.4.4 The contractor shall establish and maintain consistency of C4ISR functional and physical project attributes requirements, design, and operational information throughout the entire project life-cycle.

3.5.4.5 The contractor shall provide technical and administrative direction for the development and implementation of procedures, functions, services, tools, processes and resources required to successfully design, develop, install and support complex C4ISR systems.

3.5.4.6 The contractor shall create and manage an accurate record of systems status and support documents as applicable changes are made to system requirements and/or design. The CM tracks these requirements throughout the project's life cycle from project inception through final acceptance to operations and maintenance.

3.5.4.7 The contractor shall facilitate orderly management of C4ISR system information and system changes to improve performance, reliability, or maintainability, extend life, reduce cost, reduce risk and liability, and/or correct defects.

3.5.4.8 The contractor shall track and control work products/configuration items in accordance with the C4I Work Product Initial Baseline detailed below:

- C4I Capabilities Matrix
- Meeting Minutes
- Program Staffing Plan
- Design Documents and Drawings
- Equipment/Materials Disposition Plan
- FRCB Packages
- Implementation Schedule
- Installation Strategy
- Integrated Logistic Support(ILS)/User's Logistics Support Summary(ULSS)
- Installation Design Plan/Drawings (IDP)
- MILCON Base Electronic Systems Engineering Plan (BESEP)
- SIPH Appendix Y Placemat
- Program Management Plan (PMP)
- Requirements Analysis Documents (RAD)
- Configuration Management Plan (CMP)
- Quality Assurance Plan (QAP)
- System Operational Verification Test (SOVT) Plans
- Transition & Cutover Plans

3.5.5 MILCON C4ISR Integration Support Functions

3.5.5.1 The contractor shall assist the government in providing Military Construction (MILCON) Base Electronics Engineering Systems Engineering Plans (BESEP) and associated deliverables in accordance with the SPAWAR Shore Installation Process Handbook.

3.5.5.2 The contractor shall assist the government in detailing pertinent C4ISR system technical parameters, physical characteristics, environmental and interface requirements and performance objectives that impact construction design.

3.5.5.3 The contractor shall support the government Chief Engineer/Lead Systems Engineer in ensuring C4ISR requirements and concerns/issues are being addressed through all phases of NAVFAC PAC-Architect/Engineer (A/E) design and construction effort. This includes factors such as; C4ISR system heat, power and cable infrastructure requirements, fire protection, electronic physical security, mission assurance criteria (MAC) and confidentiality levels, electromagnetic compatibility/interference (EMC/EMI), bonding/shielding/grounding are accounted for in the A/E design.

3.5.5.4 The contractor shall attend key building design reviews and charettes that occur during the Task Order Period of Performance (POP).

3.5.5.5 The contractor shall advise the government of lessons learned from previous MILCON projects to improve planning and execution of future GMB projects.

3.5.5.6 The contractor shall submit all inputs in the Engineering and Technical Services Accomplishment Report at the end of the contract. The report will provide accomplishments and services specified in paragraph 3.5.5.

3.5.6 Technical Writing Support Requirements

3.5.6.1 The contractor shall attend and document design review and team meetings at SPAWAR, DPRI, and other sites as directed. The meeting minutes will document key technical discussions, agreements, and actions plans from the reviews and meetings.

3.5.6.2 The contractor shall make and properly record changes to C4ISR technical manuals, instructions and other documents. Where applicable, the contractor shall complete change page records.

3.5.6.3 The contractor shall collate material provided by the GMB C4ISR Technical Team according to a defined order, i.e., numerical, alphabetical, by topic.

3.5.6.4 The contractor shall support the development, editing, proofreading, organizing and review of planning and design documents such as; System Operational Verification Tests (SOVT), Transition and Cutover Plans, Integrated Logistics Support Plans (ILSP), and Certification and Accreditation (C&A) plans in accordance with the Shore Installation Process Handbook. The documents will be formatted in MS Word and converted into portable document format (PDF) file for distribution.

3.5.6.5 The contractor shall compile and consolidate complex technical information and inputs received from project SMEs to produce engineering design documents and briefings. Information will be provided by the engineering team through discussions, interviews, reference documents, design drawings, notes and sketches.

3.5.6.6 The contractor shall generate and add titles, labels, tags, nameplates, and headings to documents and shall provide indexes and tables of contents for written material/documents.

3.5.6.7 The contractor shall write abstracts of documents to provide background for task analysis.

3.5.6.8 The contractor shall submit inputs in the Engineering and Technical Services Accomplishment Report at the end of the contract. The report will provide accomplishments and services specified in paragraph 3.5.6.

3.5.7 Drafting Support Requirements

3.5.7.1 The contractor shall perform C4ISR engineering drafting, drawing review, drawing control, and related services required in the design of electronic/communications equipment, systems and installations. Drawings shall be prepared in digital format using AUTOCAD software in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.5.7.2 The contractor shall produce mechanical, electrical/electronic drawings from rough engineering sketches in accordance with Appendix Q of the SPAWAR Shore Installation Process Handbook.

3.5.7.3 The contractor shall scale drawings to permit additions of details. This may require enlarging or reducing supplied drawings, providing "blow-ups" of selected zones of drawings to show appropriate details. When required, perform sectioning of various views to show "hidden" details.

3.5.7.4 The contractor shall prepare drawing layouts from one or more engineering sketches, which clearly emphasize elements necessary for timely installation, fabrication, acquisition or adaptations.

3.5.7.5 The contractor shall examine and check engineering drawings for compliance with cited specifications and to ensure necessary items are included in each drawing to support the assigned task.

3.5.7.6 The contractor shall draw graphs or charts in any scale from rough diagrams, construct proportions to represent intended percentages of displayed data, and choose appropriate media for the presentation.

3.5.7.7 The contractor shall prepare engineering drawings or sketches of existing equipment or installations where original drawings are inadequate or non-existent.

3.5.7.8 The contractor shall prepare illustrations, diagrams, graphs, charts, 3D renderings, or other appropriate graphic medium for various presentation media as MS Power Point briefing slides, reports, user manuals, and training materials.

3.5.7.9 The contractor shall manage and control IDP Master Drawing Sets for projects, including the cross-referenced (X-REF) files.

3.5.7.10 The contractor shall update IDPs base on red-lines provided by the project design team.

3.5.8 Administrative and Clerical Support Requirements

3.5.8.1 The contractor shall attend and record minutes for the GMB C4ISR Technical Team's program meetings and reviews associated with MPD development. Minutes shall be documented and distributed weekly **(CDRL A008)**.

3.5.8.2 The contractor shall perform data entry into various data systems and management information systems to ensure current status. The contractor will retrieve status reports from databases.

3.5.8.3 Using MS Office software, including MS Project and MS SharePoint, the contractor shall perform editing, updating, proofing, general organizing and distribution of the GMB C4ISR technical documents and status reports supporting program effort.

3.5.8.4 The contractor shall make reproduced copies of original technical documents and file printed copies as required to support meetings, briefings and deliverables. The contractor shall also maintain files of printed documents.

3.5.8.5 The contractor shall maintain program administrative supplies supporting program planning and execution and assist in ordering administrative supplies.

3.5.8.6 The contractor shall manage the scheduling of conference rooms to support program meetings.

3.5.8.7 The contractor shall manage program folders, files, and documents on the Department's share drive and MS SharePoint site.

3.5.8.8 The contractor shall provide assistance in coordinating site visits, and arranging travel (including assisting with travel requests and air, hotel and car reservations).

3.5.8.9 The contractor shall maintain and keep current documents that support program effectiveness and organization such as the program organization charts, recall rosters, project schedules and reports.

3.6 CDRL A001

The contractor shall complete a Contractor's Progress, Status and Management Report monthly. The report shall describe the contractor's progress in completing the technical requirements in this task order. The report will also include financial status and personnel status/staffing plan. Trip reports are to be included in the Progress and Status Report.

3.7 CDRL A002

The contractor shall complete a Contractor Roster Report monthly. The report shall list all contractor personnel assigned to execute tasking.

4.0 GOVERNMENT FURNISHED MATERIAL

4.1 For designated government site employees (only), the Government will provide workspace, telephone access, (local, DSN and long distance), reproduction facilities, and proper building access identification badges as required. The Government will provide access to appropriate reference material and databases necessary in the performance of this effort. The Government will provide coordination assistance to assist the contractor in accessing required information. The Government will provide access to relevant Government organizations, information and documentation, manuals, texts, briefs and associated materials, as required and available.

5.0 CONTRACTOR ACQUIRED PROPERTY

The contractor shall provide items listed below to support work described in Sections 3.1.2, 3.2.2, 3.3.2, 3.4.2 and 3.5.2. The government requires new equipment purchases.

DESCRIPTION	Quantity
Fiber Optic Test Set with Characterization Module	1 each
Fiber Optics Test Set	1 each

Note: The contractor is not authorized to purchase these items without prior authorization from the GMB SPAWAR Technical Representative and SPAWAR contracts approval. The contractor with the proper authorization from the Government will purchase materials up to the allocated funding line. The projected funding line for the procurement of materials is $110,000.

6.0 TRAVEL

6.1 The following travel is for estimating purposes only. It is anticipated that the following travel requirements may be necessary for the Base Year and Option Year 1 (same locations for both the base year and option year 1):

6.1.1 (b)(3) – two (2) persons, four (4) trips for three (3) days.

6.1.2 (b)(3) – two (2) persons, two (2) trips for nine (9) days.

6.1.3 (b)(3) – two (2) persons, six (6) trips for seven (7) days.

Note: All travel and/or travel changes shall be requested in writing and approved in advance by the Contracting Officer's Representative.

7.0 SECURITY

7.1 The nature of this task requires access to Secret information. The work performed by the Contractor will include access to unclassified and up to Secret data, information, meetings, and spaces.

7.2 Anti-Terrorism/Force Protection (AT/FP) briefings are required for all personnel (Military, DOD Civilian, and contractor) per OPNAVINST F3300.53C. Contractor employees must receive the AT/FP briefing annually. The briefing is available at https://atlevel1.dtic.mil/at/, if experiencing problems accessing this website contact ssc_fortrav@navy.mil.

7.3 As required by National Industrial Security Program Operating Manual (NISPOM) Chapter 1, Section 3, contractors are required to report certain events that have an impact on: 1) the status of the facility clearance (FCL); 2) the status of an employee's personnel clearance (PCL); 3) the proper safeguarding of classified information; 4) or an indication that classified information has been lost or compromised. Contractors working under SSC Pacific contracts will ensure information pertaining to assigned contractor personnel are reported to the Contracting Officer Representative (COR)/Technical Point of Contact (TPOC), the Contracting Specialist, and the Security's COR in addition to notifying appropriate agencies such as Cognizant Security Agency (CSA), Cognizant Security Office (CSO), or Department Of Defense Central Adjudication Facility (DODCAF) when that information relates to the denial, suspension, or revocation of a security clearance of any assigned personnel; any adverse information on an assigned employee's continued suitability for continued access to classified access; any instance of loss or compromise, or suspected loss or compromise, of classified information; actual, probable or possible espionage, sabotage, or subversive information; or any other circumstances of a security nature that would affect the contractor's operation while working under SSC Pacific contracts.

7.4 Operations Security: OPSEC is a five step analytical process (identify critical information; analyze the threat; analyze vulnerabilities; assess risk; develop countermeasures) that is used as a means to identify, control, and protect unclassified and

unclassified sensitive information associated with U.S. national security related programs and activities. All personnel working under this task will at some time handle, produce or process Critical Information or CPI, and therefore all Contractor personnel must practice OPSEC. All work is to be performed in accordance with DoD OPSEC requirements, and in accordance with the OPSEC attachment to the DD254.

8.0 PLACE OF PERFORMANCE

8.1 Accomplishment of the results contained in this PWS requires work at SSC PAC Pacific C4ISR Department (Hawaii); MARFORPAC (Hawaii); Contractor facilities and travel to locations designated in this PWS.

8.2 Normal workdays are Monday through Friday except US Federal Holidays. Workers typically work eight (8) hours per day, 40 hours per week. Flextime workers start not earlier than 0600 and not later than 0900. Core hours of work are from 0900 to 1500 daily. All contractor employees are expected to be available during core hours.

9.0 PERFORMANCE BASED CRITERIA

9.1 Performance Requirement

The contractor shall provide services and deliverables in accordance with this Performance Work Statement (PWS) and in accordance with the attached task order Contract Data Requirements List (CDRL) DD Form 1423-1.

9.2 Performance Standard

The contractor's performance shall meet all of the requirements of this PWS and comply with all applicable guidance, directives, and standards. The contractor shall deliver all task order data items in accordance with the authorities, content, format, media, marking, applications, quantities, frequency and submission date, delivery method, addressee, and DD250 requirements specified in the CDRL for each data item.

9.3 Acceptable Quality Level

The effectiveness of the contractor's services and/or deliverables will be measured for 100% compliance with the PWS and CDRL requirements.

9.4 Method of Surveillance

The Government will monitor and assess the contractor's performance against the Acceptable Quality Level in accordance with this task order's Quality Assurance Surveillance Plan (QASP).

9.5 Incentive

Failure to meet acceptable quality levels may result in an unsatisfactory past performance report by the Government.